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## MEMORANDUM

TO:

FROM:

REFERENCE:

SUBJECT:

Second Interim Report

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During the past interim period, engineering time has been expended in the investigation of the general properties of marginal punched cards, correspondence to a preliminary listing of instrument manufacturers, and compilation of fundamental quantities subject to quantitative measurement. While it is felt that continuance of discussions to acquire agreement on nomenclature and definitions of terms will be ultimately rewarding, it is believed that the sponsor's best interests are served by pursuing the more practical phases of the project.

The conclusion has been reached by those now associated with the project that the term "figure of merit" is definable only in terms of the instrument application. The application of any instrument will fix the relative importance of those factors which describe a transducer. These factors have been tentatively used as the basis for the marginal punched card code. It is planned to code in each of the following items of information, with only the first item as a major code:

1. Measurable quantity
2. Operating range
3. Accuracy
4. Sensitivity
5. Type of electrical output
6. Type of element (active or passive)
7. Linear or non-linear scale
8. Operating temperature range
9. Weight
10. Size
11. Time constant
12. Cost
13. Operating life
14. Supplementary data

It will be the aim, therefore, to arrange the data accumulated in such a manner as to facilitate the accurate selection of the single transducer most suitable for a particular application.

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For preliminary investigation a 5" x 8" card having a double row of holes on both of the long dimensions and a single row of holes in both of the short dimensions has been selected from a stock group prepared and distributed by the McBee Company, New York City. One thousand cards were purchased together with sorting blocks, picks, and punches. In addition, a special multiple element pick has been prepared in anticipation of rapid selective sorting methods where a single pass and maximum card edge economy are combined to catalog an extremely large number of items. Selective coding will be used wherever possible since it allows the greatest conservation of marginal area.

Letters to approximately 125 manufacturers of various transducer type instruments have been mailed. No attempt to narrow the field has been made. All manufacturers of devices which measure fundamental parameters and produce an electrical output are considered to be within the scope of the program. Detailed examination of some catalog data will be started during the next interim period.

A general listing of all fundamental quantities which can be measured is under preparation. Headings will not be omitted even if no transducers are discovered to measure the particular quantity. This immediately establishes whether or not a transducer is available.

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